New NOHRSC National Snow Analyses (NSA) Snow Products to be Sent to AWIPS in SHEF or AWIPS Headers and How to Modify Your SHEFPARM File

2004 December 1

The NOHRSC maintains an energy-and-mass-balance snow model for the CONUS. Ground-based snow water equivalent and snow depth observations are assimilated into the snow model to update selected model state variables. Additionally, airborne snow water equivalent and satellite derived areal extent of snow cover observations are also assimilated into the model when available. Last year, the NOHRSC distributed over AWIPS in SHEF modeled snow water equivalent (SWIPZ) and areal extent of snow cover (SAIPZ) products on a basin-by-basin basis. This year the NOHRSC will produce and send to AWIPS SHEF products for the following new physical elements:

Snowpack Thickness (starting mid December)
SDIPZ
Modeled Snow Depth Over Land
Basin and Basin Elevation Zone Average (inches)

Blowing Snow Sublimation Rate (starting mid December)
SBDPZ
Modeled 24-Hr Blowing Snow Sublimation Over Land
Basin and Basin Elevation Zone Average (inches)

Melt Rate (staring mid December)
SMDPZ
Modeled 24-Hr Snow Melt Over Land
Basin and Basin Elevation Zone Average (inches)

Snow Average Temperature (starting mid December)
SEDPZ
Modeled 24-Hr Average Snow Temperature Over Land
Basin and Basin Elevation Zone Average (Degrees F)

Snowpack Sublimation Rate (starting mid December)
SUDPZ
Modeled 24-Hr Snowpack Sublimation Over Land
Basin and Basin Elevation Zone Average (inches)

Rain plus Melt (early 2005)
SPDPZ
Modeled 24-Hr Rain Plus Snowmelt Over Land
Basin and Basin Elevation Zone Average (inches)

The new SHEF messages will be distributed over AWIPS under the following header:

SRUS43 KMSR DDHHMM (where DDHHMM is Day Hour Minute)
SCVxxx (where xxx is the RFC region code)

or

SRUS43 KMSR DDHHMM
SPDxxx (if Snowpack Thickness)

No modifications to the SHEF decoder software is required to decode our new messages. You will, however, have to modify your SHEFPARM file to include the following lines under section *1 (PE CODES AND CONVERSION FACTORS):

```
SB 0.0393701
SM 0.0393701
SE -1.0
SU 0.0393701
SP 0.0393701
```

Our SHEF decoder with the above SHEFPARM parameters on the following test SHEF message:

```
SRUS30 KWOH 231601
RRSRSA
:&&HADS SOR REPORT FOR USER RSA
.A SLMC1 20041123 DH1500/SWIRG 2.44
.A SLMC1 20041123 DH1500/SBDPZ 2.54
.A SLMC1 20041123 DH1500/SMDPZ 2.64
.A SLMC1 20041123 DH1500/SEDPZ 2.74
.A SLMC1 20041123 DH1500/SUDPZ 2.84
.A SLMC1 20041123 DH1500/SPDPZ 2.94
```

yielded the following results:

```
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SWIRGZ
   2.4400 Z   -1.000  0000 0 0          " "
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SBDPZZ
   2.5400 Z   -1.000  2001 0 0          " "
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SMDPZZ
   2.6400 Z   -1.000  2001 0 0          " "
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SEDPZZ
   2.7400 Z   -1.000  2001 0 0          " "
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SUDPZZ
   2.8400 Z   -1.000  2001 0 0          " "
SLMC1     2004-11-23 15:00:00  0000-00-00 00:00:00  SPDPZZ
   2.9400 Z   -1.000  2001 0 0          " "
```

The above results are consistent with how we employ the SHEF decoder with our observation posting logic. HSD has submitted a change request to update the SHEFPARM file at the national level and that should be effective in OB5 scheduled for completion in the spring of 2004. Also, we have made a request to create a "modeled" product type in the SHEF database. The "modeled" type parameter in the national SHEF database should be implemented in OB6 or OB7.

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